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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,863	09/18/2001	Johan Olof Anders Robertsson	US57.0326-WO	2920

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Schlumberger Doll Research
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EXAMINER
LE, TOAN M

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/936,863	Applicant(s) ROBERTSSON ET AL.	
	Examiner Toan M Le	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikelle et al..

Referring to claims 1, 12, 18, and 24, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium comprising the steps of: receiving pressure data representing at least the pressure in the fluid medium at a first location and a second location, the first location being in close proximity to the second location; receiving vertical particle motion data representing at least the vertical particle motion of acoustic energy propagating in the fluid medium at a third location and a fourth location, the third location being in close proximity to the fourth location, and the first, second, third, and the fourth locations being within a spatial area (col. 7, lines 1-7; figure 1); calculating a plurality of spatial filter coefficients based in part on the velocity of sound in the fluid medium, the density of the fluid medium and a plurality of acquisition parameters, thereby creating a spatial filter which is designed so as to be effective at separating up and down propagating acoustic energy over a range of non-vertical incidence angles in the fluid medium; applying the spatial filter to the vertical particle motion data to generate filtered particle motion data (col. 7,

lines 12-14; equations 4-6); combining the filtered particle motion data with the pressure data to generate separated pressure data, the separated pressure data having up and down propagating components separated; and analyzing at least part of the up and down propagating component of the separated pressure data (col. 7, lines 16-18; figure 4).

As to claim 2, Ikelle et al. discloses a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the acquisition parameters include the temporal sampling interval, the spatial sampling interval, and the number of independent locations at which the pressure and vertical particle motion data are measured (col. 6, lines 64-65; col. 7, lines 27-28).

Referring to claims 3, 14, 20, and 26, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion data is measured using one or more multi-component streamers (col. 8, lines 19-23).

As to claims 4, 15, 21, and 27, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the particle velocity of the acoustic energy (col. 7, lines 29-31).

Referring to claims 5, 16, 22, and 28, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium

wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical pressure gradient of the acoustic energy (equations 4-6).

As to claims 6, 17, 23, and 29, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the pressure gradient is measured using at least two parallel streamer cables in close proximity and vertically offset from one another (col. 3, lines 44-46).

Referring to claim 7, Ikelle et al. discloses a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical displacement of the acoustic energy (col. 4, lines 37-38).

As to claim 8, Ikelle et al. discloses a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical acceleration of the acoustic energy (equation 4-6).

Referring to claims 9, 13, 19, and 25, Ikelle et al. discloses a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the distance between the first location and the second location and the distance between the third location and the fourth location is less than the Nyquist spatial sampling criterion (col. 1, lines 61-64).

As to claim 10, Ikelle et al. discloses a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the spatial area is substantially a portion of a line, and the range of non-vertical incidence angles includes substantially all non-horizontal incidence angles within a vertical plane that passes through the portion of line (figure 1).

Referring to claim 11, Ikelle et al. discloses a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the spatial area is a portion of a substantially planar region, and the range of non-vertical incidence angles include substantially all non-horizontal incidence angles (figure 3).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703)305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703)305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-0956.

Toan Le

November 20, 2002

EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
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